USAR/ISAR Protocol of Use

1. Scope

This document relates to the use of chemical light technology at any operational incident where it could enhance the safety of personnel.

The health and safety of all personnel deployed to incidents is paramount, by utilising chemical lights access and egress (safe routes), hazards and areas of specific interest can be identified and controlled. Chemical lights can also be used for additional scene lighting or emergency lighting in the case of sudden loss of lighting.

Various colours and shapes of lights are available and the following guidance is intended to standardise their use across capabilities and agencies.

2. Colour Designation

Red	Hazard, No entry
Green	Safe route
Orange	Marking areas of interest, avoid unless required for specific reason
White	General illumination
Blue	Specialist Use (for example Identifying monitoring equipment .)

3. Product Uses

3.1. Hazards

General hazards can be identified using 150mm chemical light sticks (Red). Either tape off the hazard and attach the light to the tape using the snap hook or attach the light to the hazard directly using duct tape or cable ties to restrict access.

Specific hazards such as trip hazards, open edges, overhanging hazards should be identified accordingly;

Low level – trip or open edge – use Red 375mm chemical light stick with the bi-pod base at ground level, this will draw the eye to the ground identifying the hazard.

High level- overhanging hazards- hang Red 150mm chemical light stick from the ceiling or any available high level point using duct tape, cable ties or magnetic base from steelwork e.g. This again draws the eye to the hazard.

Red chemical light circle markers may be added with markings identifying the hazards such as hazmats e.g

Figure 1: Red Light Shape circle marker (Hazmats)

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Restricting entry into hazardous areas-

The Red and Green chemical light pads can be used as indicators of GO / NO GO

The red pad should be stuck to the wall at the entry point to the room/void if entry is not allowed; the reason for the restriction may be written on the pad, e.g.

Figure 2: light pad indicating NO GO

Note:- Whenever a hazard has been identified it should be recorded on the relevant site ID card/plan and included in briefings to crews prior to entry including the method of marking the hazard.

3.2. Safe Route

Chemical lights can be utilised to assist in the identification of safe access and egress routes. Routes can be for vehicular access to the site, over rubble piles, access through existing voids or through partially collapsed or slightly damaged structures and can assist evacuation measures.

Vehicle routes - Where vehicles are manoeuvring around the incident ground safe areas will require marking out, simply using traffic cones with cone adaptors and Green 150mm chemical light sticks attached, will denote the safe route in and out of the incident ground, for example a marshalling area.

Rubble piles- Once a rubble pile has been assessed and stabilised the chosen safe route can be identified by two lines of traffic tape forming a corridor, at intervals along the tape a Green 150mm chemical Light stick can be attached. Personnel working on or travelling over the pile will be assured that they are safe if between the light sticks.

Voids or corridors through structures- As for rubble piles however the light sticks should be taped to the walls.

Evacuation routes- As crews work their way into the risk they can fix a Green chemical light circle marker (marking with an arrow pointing the way out if appropriate) to the walls at regular intervals, for example changes of direction. This will assist in the emergency evacuation in the event of a secondary collapse or a failure of lighting.

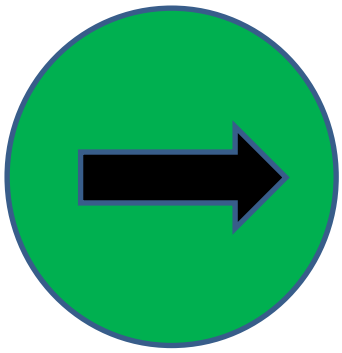

Figure 3: Green Circle marker, arrow indicating way out

Safe entry into the area- If chemical lights are utilised to give permission to access the area i.e. GO / NO GO the GO should be denoted by a Green light pad indicating GO, additional information can also be written onto the pad.

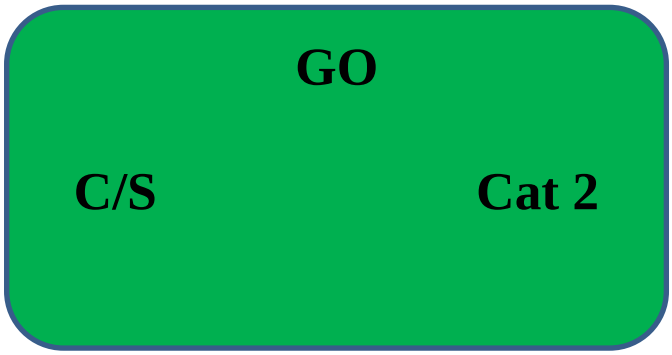

Figure 4: Green light pad showing permission to access (GO) also showing the Confined space category as Cat 2

Safe access and egress routes should be marked on plans with crews being informed during briefing sessions.
Swift water rescue teams will use green chemical lights attached to throw line bags to denote safety line, safe access/ egress during night operations.

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3.3. Areas of Interest

If there is an area of particular interest to the F&RS OIC or another agency an Orange chemical light stick and/or circle marker can be used. For example as a result of search operations, deceased or human remains can be quickly identified.

Search operations- specific areas identified by USAR technical search teams that require further search or rescue operations, such as possible or confirmed casualty locations can be identified by Orange chemical light sticks. This information should then be given to the search manager with the marking method identified.

Disaster Victim Identification (DVI)- When a casualty has been declared life extinct and left in-situ, the deceased or their remains can be identified by attaching an orange circle marker (marked with a black V struck through with horizontal line) on the wall/rubble pile adjacent to the victims head with the V acting as an arrow pointing to the head. This information should be given to the Police (DVI) Senior Identification Manager (SIM) and other relevant agencies as appropriate.

Figure 5: Orange Circle marker with V denoting victim

Note: Normal USAR victim markings should be followed even if marking on circle markers. Other areas of interest to partner agencies such as the Police Senior Evidence Recovery Managers (SERM) for example, where evidence has been discovered and requires preserving, the orange chemical light sticks and circle markers can be used.

Note: USAR team members should be advised to avoid Orange markers unless instructed to deal with them specifically – **Avoid Orange unless carrying out specific tasks.**

3.4. General Illumination

White chemical light and circle markers can be used for general illumination such as additional void lighting during camera searches, casualty comfort during entrapment awaiting rescue, Emergency lighting in case of generator/lighting failure etc.

3.5. Specialist Use

Blue chemical light sticks and circle markers should only be used for specific tasks, used to Identify where USAR team members should avoid due to specialist tasks being carried out where inadvertent interference could have an adverse effect on the incident outcomes or even safety, e.g.

Blue lights being used to identify survey equipment which should be avoided by all personnel not involved in structural monitoring, similarly any other monitoring equipment should be identified and protected similarly.

3.6. Personnel identification

A number of agencies utilise chemical lights to identify the location of personnel, for instance HVP crews will attach Yellow chemical lights to the person during night time operations If chemical lights are to be attached to personnel for the above reason or for any other reason during USAR operations, then Orange or White should be used, Red or Green should be avoided as their use in this situation may have an adverse effect on health & safety, conflicting with the USAR go/no- go marking, However DEFRA have a concept of operations procedure which allows personnel to carry Red chemical lights, all FRS personnel operating at incidents where DEFRA may deploy should consider this.

Safety note: - Green chemical lights should not be used during rail incidents without the expressed permission of the Rail Incident Officer (RIO) as Green lights may cause conflict with rail signals.

4. Summary

Chemical light technology using various colours and shapes provides the ability to denote specific hazards, safe areas, GO / NO-GO, specific tasks, general illumination and can have critical information directly written onto the light source.

The Cyalume chemical lights comply with REACH, are extremely safe using non-toxic chemicals, are suitable for the most flammable of environments and are ATEX certified making them perfect for confined space operations. The chemical lights require no specialist storage requirements, and can also be disposed of as normal waste post operation.

Disclaimer Notice:
This USAR/ISAR Protocol is subject to amendment and those amendments would not be reflected in this document.

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